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353 [202] nuts above the reach of small children. Occasionally a large wooden signal drum may be found leaning against a wall post. There are no other important permanent furnishings.

356 [412] The spaciousness of the house is matched by its neatness and cleanliness. The women sweep both inside and outside daily with a short broom made by lashing together branches of the *hapimiuk* plant. The sweepings are put on a banana leaf and carried away in an old basket to be dumped in the forest.

354 513 Smoldering fires are maintained at the foot of all beds both in the men's and women's ends to heat the sleepers' feet especially during the nights, which are often chilly, depending upon the altitude and the weather. Those at the women's beds are also the household cooking fires (see Plate 10). All household fires are made by laying three thick palm logs so that their ends meet like the spokes of a wheel. Normally, the log ends smolder slowly, but when a pot is set upon their juncture the logs soon burst into flame. With such an arrangement, fire lighting and kindling is rarely necessary. At night, additional light is provided by burning a small torch or two of copal.

Subsistence

• 24 [351] [146] Each household has either a single large garden or several smaller ones. In the latter case, the house itself is usually located in the largest. Such gardens constitute almost the exclusive source of carbohydrates for the Jívaro, providing, in terms of calories, perhaps about 65 per cent of the diet. The cultivation of slowly maturing tuberous plants, especially sweet manioc (*Manihot utilissima*), which can be harvested over long periods of time, the absence of a distinct dry

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season,[1] and a diversified crop inventory all contribute to making a continual supply of agricultural products possible throughout the year. 24 •

Crops grown for their tubers or corms include, besides sweet manioc, two varieties of sweet potato, *papa china* (from Spanish) [taro?], and three other members of the Araceae family (*sapa*, *tuka*, *wančup*), the carrot-like *maya* (arracacha?), and peanuts. Of these, manioc is grown in by far the largest quantity, and is the chief source of starch. The most important non-tuberous food plants are plantains and "white" maize. Other crops grown in relatively small quantities are squash, red peppers, tomatoes, onions, the "gold" banana (*guineo de oro* in Spanish), pineapple, papaya, sugar cane, tobacco, achiote, gourds, cotton. *Tsapay* (for heavy cordage), various fish poisons, medicinal plants, and hallucinogenic drugs, especially *Banisteriopsis* species and *Datura arborea*, are both cultivated in the garden and collected wild in the forest. [222]

Gardens are abandoned after three plantings of manioc, in other words, after about three to five years, because of the growing amount of labor required to clear the ever increasing numbers of weeds. New garden clearings are made nearby in virgin timber except when the actual household is being moved, in which case the gardens are planted at the new house location. This practice of shifting gardens, the so-called "slash-and-burn" or swidden technique, is made possible by the plentiful supply of land. The Jivaro recognize this method, despite the necessity of making new clearings, as involving less effort than attempting to cope with the weeds at the old site. 241

If a man clears the forest without the aid of neighbors, he tends to make small clearings at different times, while the rarer communal effort results in one large clearing. Whether 241 595 [476]

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178 184 278 411 438 [727] been made possible by the development of trade with the Achuara, who are the main regional producers of blowguns and curare. Formerly, blowguns and curare could only be obtained in small quantities by looting Achuara houses after a successful head-hunting raid.

178 227 438 In the case of fishing, no noticeable trends have occurred except for a very minor increase in the use of hook-and-line technique due to the acquisition of some steel fish hooks by means of the inter-tribal trade network.

178 222 137 Wild food gathering has been marked by a decline in the collection of the formerly important chonta palm fruit. This decline in collection, interestingly enough, is attributed to the introduction of the steel machete, whose efficiency, compared to the stone axe, made it easy for men to chop down chonta palms simply for their edible tips, thereby reducing the number of trees available as regular sources of the hanging clusters of fruit. In other words, the introduction of steel cutting tools, by contributing to the degradation of this wild food resource, decreased rather than increased food obtained from gathering.

178 • 24 Species of domesticated plants remain unchanged except for two new additions, *papa china* and the onion, introduced by means of trading partners from the frontier Jivaro, who in turn had adopted them from the missionaries and Ecuadorian settlers. None of the aboriginal native crops has been abandoned within the memory of the informants.

[462] The sexual division of labor in agricultural activities is unchanged except for the relatively inconsequential harvesting of the small plantings of red pepper and sugar cane. Formerly, both sexes engaged in harvesting these, whereas now only women do. The decline of male interest in harvesting sugar cane seems to be due to the fact that since the adoption of firearms, blowguns and poisoned darts are rarely used any

178 278 411 814

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28. Vacas Galindo, 1895, pp. 49–50; Anonymous, 1952, p. 38. 000
29. Karsten, 1935, p. 8.
30. Anonymous, 1952, pp. 32–33; 38.
31. Platt, 1932, pp. 93–94.
32. Most of the following historical information is derived from oral accounts of older Ecuadorian colonists and Jivaro. [173]
33. See Stirling, 1938, Plates 11–17.
34. Dirección General de Estadística y Censos, 1954, pp. 138; 141. These figures include the population of Macas. The Summer Institute of Linguistics aerial survey counted 256 Jivaro houses in the same region in 1956.
35. Drown, 1961, pp. 22, 31, 58–9, 140–44.
36. Macabeo and Jivaro oral histories. [173]

CHAPTER II

1. Although rainfall is fairly heavy, it is well distributed throughout the year, and the distinct seasonal differences found in much of tropical forest South America are not as evident here. Short term records are available for rainfall and temperature at the Ecuadorian settlements of Macas, Méndez, and Gualaquiza, all in the higher western portion of the region. These reports of annual rainfall range from 1,992 mm. at Gualaquiza to 2,599 mm. at Méndez, with the minimum for a single month at any station being 95 mm. Recorded average temperatures from these same stations range from 21.4 to 25.2 degrees Centigrade (Ferdon, 1950, pp. 73–74). 24 • 132
2. Cf. Steere, 1950, p. 85. 000
3. In an earlier paper (Harner, 1962, p. 269) I questioned whether the Jivaro had any gods or goddesses, but additional field study and analysis have led me to be less certain of the classificatory status of Nunui and, in fact, of the definition of "gods" and "goddesses" in general. [128]
4. Demons lack blood. [776]

CHAPTER III

1. Based upon a Summer Institute of Linguistics aerial survey in 1956–57 (Glen Turner, personal communication). The Jivaro population near the Mocuma and Yaupi missions, comprising some eighty houses, is specifically excluded in the total here. 361 161 114

The Summer Institute of Linguistics personnel were employing an intentionally conservative estimate of five persons per dwelling, which was used for earlier population estimates by the author (Harner, 1962, p. 259; 1963, p. 9; 1968b, p. 363). Additional research has led the author to revise the estimate of average household population upward to nine, and this is the figure employed in the present study. It seems impossible, however, to reconcile my results with those